

**Bilingual Spanish English Learners**

***Research Foundation for an Early Identification Assessment***

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### Abstract

Almost eight percent of students in US public schools are Spanish English Learners (ELs) (NCES 2022). Early identification of any student at risk for literacy challenges and the provision of evidence-based intervention can help ameliorate and possibly prevent the deleterious effects of poor literacy skills (Gaab & Petscher, 2022; Ozernov-Palchik & Gaab, 2016). Therefore, it is important that the identification of students at risk for reading problems occurs as early as possible in the first stages of their educational experience (from prekindergarten to second grade) in order to guide instruction. The purpose of this paper is to summarize the research focused on the development of reading skills in Spanish-speaking ELs in order to identify the most important assessment components necessary to develop a dyslexia screener and comprehensive literacy assessment that can inform instruction. Our findings suggest that such an instrument must evaluate three main areas including (a) *oral language proficiency*, (b) *environmental factors* (eg., *SES, language spoken at home, language of instruction, etc.*), and (c) *neurocognitive factors required for reading*. Family history of reading challenges is also of great importance when evaluating for risk of reading difficulties (Wilcutt et al., 2010). Furthermore, based on the child's language dominance or previous exposure to English, such an instrument must allow for a format that evaluates these skills in English, Spanish and/or bilingually to align with the language skills or capabilities of the individual student.

## Introduction

There is significant variation in the way that students are designated as English Learners (ELs) in the United States. Criteria can vary from one state to another resulting in ambiguity and complicating the formulation of a workable definition (Francis, 2020). For the purpose of this paper, we will define ELs as students whose first language is not English but who are learning English in school at various levels of proficiency. Of the more than 400 languages spoken in schools in the United States, most of the ELs speak Spanish. According to the National Center for Education Statistics (NCES, 2022), there were 5.1 million ELs in the United States in 2019. This represents 10.4 percent of the public schools' student population. Of those, 3.9 million students were Spanish speaking, accounting for 75.7 percent of all ELs and 7.9 percent of the population in public schools. Given the scope of this paper and our review of the scientific literature focusing on Spanish ELs, we will use the term EL to refer exclusively to Spanish-speaking English Learners.

The overall literacy rates in the United States have remained relatively unchanged for the last 20 years. The National Assessment of Educational Progress (NAEP, 2022) has shown very little change in reading scores for all students since 1992. Approximately 63 percent of fourth-grade students in the United States read at or above a NAEP basic proficiency level. In comparison, only 50 percent of students identified as Hispanic read at or above a NAEP basic proficiency level (NAEP, 2022). In spite of these differences, Hispanic fourth graders have shown an 11 percent improvement in their reading proficiency scores since 1992. Unfortunately, their performance is still significantly lower than those of the general student population. Given that reading proficiency has been linked to positive economic, occupational and overall social outcomes (Irwing et al., 2007), it is imperative that we identify students at risk for reading problems as early as possible. The impact of early reading skills development has been extensively documented in the literature. Children who develop reading skills earlier have more opportunities for print exposure and tend to develop stronger automaticity skills. In addition, they also

show more progress in vocabulary and comprehension strategies when compared with poor early readers (Mol et al., 2011). Difficulties learning to read can result in significant, cumulative consequences that can limit academic success and lead to social-emotional challenges like anxiety and depression (Hendren et al., 2018). Furthermore, learning difficulties can impact overall health and longevity (DeWalt, 2007).

Given the large number of ELs in our public schools who demonstrate lower academic achievement, it is important to identify and support them as early as possible, that is, from pre-kindergarten to the second grade. Early identification of reading difficulties can lead to the provision of appropriate, evidence-based early interventions which can increase their opportunities to develop proficient reading skills (Ozernov-Palchik et al., 2017; Lovett, et al. 2017). Strong reading skills facilitate the attainment of academic success and the positive economic, occupational and social outcomes associated with it. EL students who have limited literacy skills cannot enjoy full participation in our schools, place of employment and most other aspects of our society (Francis, 2006).

Development of reading requires the acquisition of decoding skills and age appropriate oral language abilities. These skills and functions are impacted by the interaction of environmental, cognitive and neurological factors (Ozernov-Palchik et al., 2017). As such, when considering the development of an instrument to identify bilingual students at risk for reading problems, special attention should be given to the factors that make this population unique.

### **Background - Problem Definition**

The goal of this paper is to review the scientific literature to assist in developing an assessment that measures culturally and linguistically appropriate domains of development, learning and competencies essential for language literacy acquisition in the EL population. The instrument should focus on language development in monolingual and bilingual ELs as well as those who may speak other dialects or demonstrate “code-switching”, which is the use of two languages within a sentence or phrase.

Assessing the EL population is complicated given their heterogeneity, instructional context (e.g. language of instruction and previous educational experiences) and challenges associated with the language used for assessment (Francis, 2020). As such, when considering the development of a bilingual reading assessment instrument we must examine the most critical variables that influence the evolution of these skills in EL students. A review of the literature suggests that there are three major factors that together impact the development of reading skills in the EL population. These include *language proficiency, neurocognitive factors and environmental factors* (Brice & Brice, 2008; Fiestas, et al., 2021; Francis, 2006; Gaab & Petscher, 2022).

### ***Language Differences***

A literature review addressing reading development and difficulties in Spanish and Spanish-English context, Haynes et al. (2009) describes the shallow phonology, transparent orthography and simple syllabic structure functions of Spanish. This simplicity facilitates the consolidation of these functions allowing for faster development of word recognition skills in Spanish than in English, a language with deep phonology, opaque orthography and a more complex syllabic structure. Spanish morphology, on the other hand, is significantly more complex when compared to English. Some of these variations include suffixed markings for gender, concordance between noun and article in number and gender, and a complex verb phrase morphology (variance according to person, number, infinitive form, mood and tense). Finally, pronouns that are attached to verbs (enclitics) are often attached to the end of verbs. These language differences are important considerations when developing and using early assessment instruments. Any assessments for ELs must be sensitive to the common patterns of Spanish and English and the likely overgeneralizations of Spanish structures during early English language and literacy development.

### ***Language Proficiency***

Language proficiency refers to the ability to use language accurately and appropriately in its oral and written forms across a variety of settings (Cloud, Genesee & Hamayan, 2000). Individuals with language proficiency can effectively communicate and understand thoughts, ideas, feelings and emotions. Research has described that students with poor oral language proficiency struggle with academic skills such as reading fluency and reading comprehension. Not all ELs have similar English proficiency. Some may be proficient in Spanish while others may be learning both languages (Spanish and English) simultaneously. Still other students may experience language development challenges that can impact proficiency in Spanish and English. The Report of the National Literacy Panel on Language-Minority Children and Youth (2006) indicated that proficiency in English literacy is significantly influenced by individual differences among students. Factors, such as general language proficiency, age, English oral proficiency, cognitive abilities, previous learning experiences, and the differences and similarities between Spanish and English can significantly impact literacy development. Of all these factors, English language proficiency has a significant impact on learning English literacy skills.

It is important to understand how language is acquired for ELs. Language acquisition is the process by which a person learns to understand and use oral language, written language, and/or other communications systems (eg., sign language). Krashen & Terrell (1983) describe five stages for the acquisition of a second language. These stages are as follows: (See Appendix B)

1. Silent or receptive phase (Preproduction)
2. Early production
3. Speech emergence
4. Intermediate language proficiency
5. Advanced language proficiency

As students move through these stages of language acquisition, they develop two distinct levels of language proficiency as described by Cummins in 1981. These include *Basic Interpersonal Communicative Skills (BICS)* and *Cognitive Academic Language Proficiency (CALP)*. BICS include the surface skills of listening and speaking. CALP includes the higher level skills required to achieve academic proficiency. Second language (L-2) acquisition requires native language (L-1) proficiency as a foundation. Therefore, students can develop *BICS* in their native language which can help in the development of these skills in L-2. Attaining success in BICS takes approximately 1 - 2 years of instruction. The acquisition of CALP skills usually takes 5 to 7 years to fully develop which may result in academic challenges during that period, as it requires the use of higher-level thinking, vocabulary and reasoning skills (Cárdenas-Hagan, 2020).

### ***Neurocognitive Factors***

Research in reading disorders, and in particular dyslexia, has identified neurological functions that support the development of decoding, fluency and comprehension skills. These, in turn, are significantly affected by the language of instruction (Francis, 2020). The most important neurocognitive assessment items that impact reading include phonological awareness, pseudoword repetition, rapid automatized naming, receptive/expressive vocabulary, letter-sound knowledge and listening comprehension. Of these factors, Ozernov-Palchik et al. (2017) identified letter-sound knowledge, rapid automatized naming (RAN), verbal short-term memory (VSTM) and phonological awareness (PA) as the strongest early predictors of reading skills. Baker et al. (2022) described EL native language vocabulary knowledge as predicting listening comprehension and vocabulary in the second language. The findings not only indicate that native vocabulary knowledge is a strong predictor within grades and across grades but they can also further support the understanding of EL students' second language vocabulary and comprehension.

In addition to the neurocognitive factors previously described, it is important to consider other variables that can impact learning. Children who experience reading challenges may also have an increased risk for other neurodevelopmental conditions including math difficulties, ADHD, speech-language disorders, coordination disorders, ASD and others (McGrath et al., 2020; Mol et al., 2019). These conditions can impact the development of literacy skills.

### ***Environmental Factors***

ELs are a very diverse group. They come from different *socioeconomic backgrounds*, ranging from the wealthy to those who live in poverty. Parental level of education (Ardila et al., 2005) and family history of reading challenges (Gigorenko et al., 2020) are other important factors that can influence the development of literacy skills. A significant vocabulary gap becomes evident by the age of three years between children living in high SES households and those of low SES as reported by Hart & Risley (2003). Romeo et al. (2018) further emphasizes that young children need opportunities to participate in conversations which focus on their interests during everyday interactions with caregivers. Therefore, the quality of the interactions and the use of meaningful language should be considered when describing the vocabulary development of young children.

The early development of literacy requires instruction in phonological awareness, letter recognition and sound/symbol association. These skills are typically learned in the early stages of reading and writing instruction (pre-kindergarten to second grade). As such, we must consider the student's previous educational opportunities when assessing for the risk of reading challenges. With regard to previous educational experiences, the IRIS Center (2022) categorizes ELs into three distinct groups: those with no formal education, those with inconsistent or sporadic education and those who regularly attended school. According to the Instituto Internacional de Planeamiento de la Educación (IIPE-UNESCO, 2019) mandatory schooling in Spanish-speaking countries in Latin America can begin as early as 3 years of age (Mexico, Ecuador, Peru and Venezuela) or as late as 5 years (Dominican Republic,

Colombia, Nicaragua, Honduras and Paraguay). Access to early childhood and preschool instruction in Latin American countries is not uniformly available in spite of their goals. Factors that can significantly influence enrollment include SES and the location of their residence resulting in inconsistencies in educational experiences for 5-year-old students. In general, those residing in higher SES households and those living in rural areas have higher levels of schooling than students of low SES and residing in urban areas (IPEE-UNESCO, 2019). Countries like Uruguay, Mexico, Chile, Peru and Venezuela report over 90 percent enrollment, while others, like Guatemala and Bolivia, report schooling rates of 31.4 and 71.8 percent respectively. However, even within these countries, the early educational experience varies considerably.

In the United States, only 54% of 3 and 4-year-old children are enrolled in preschool (NCES, 2019). It is reported that 55.3% attend a full-day preschool program. Therefore, out of a population of 8.1 million children, 3.7 million do not attend preschool. There is not a national universal preschool program initiative in the United States as in other countries.

Regarding the language of instruction of ELs in the US, The National Literacy Panel on Language Minority Children and Youth (2006) suggests that those taught in Spanish and English perform better on indicators of English reading proficiency than ELs taught in English-only classrooms. However, it has been reported that the majority of EL students are serviced in primarily English-only classrooms (August & Hakuta, 1997). Dual language and transitional models focus on developing proficiency in both languages and may include native Spanish and English speakers. Transitional programs begin instruction in the student's native language subsequently transitioning into English-only instruction. Dual programs emphasize the development of proficiency in both languages. In contrast, English immersion programs provide instruction in English with or without the support of English as a Second Language programs. It is important to consider that bilingual programs vary considerably in their curriculum, program design

and implementation making comparisons between them challenging (Ayer et.al, 2010). Appendix B provides descriptions of the bilingual programs of instruction models.

### **Early Assessment for Reading Challenges in EL Students: Proposed Solution**

Screening for dyslexia and related reading difficulties is of critical importance as this will help identify students who are at risk for developing literacy challenges. Gaab & Petscher (2022) recommend starting screening in preschool and no later than the fall/winter of formal schooling, with the goal of mitigating and possibly preventing the impact of reading challenges later on in school. Early intervention can have a dramatic impact on the development of reading skills, including faster, long-lasting progress (Lovett et al., 2017; Catts et al. 2015).

Identifying the precursors of reading challenges is an essential element of such an instrument and will tell us what functions to screen. Based on the literature review, an assessment tool should include contributing elements, such as environmental factors, as well as the language(s) spoken at home and school and family history of reading challenges. In addition, it needs to provide an indication of language proficiency and a history of developmental language delay and/or oral language concerns. Other essential components include the assessment of the neural substrates for reading that impact the acquisition of decoding and fluency skills and language comprehension. Among them, phonological awareness (PA), letter-sound knowledge, rapid automatized naming (RAN), and verbal short-term memory have been identified as strong predictors of reading skills. The importance of these neurocognitive functions in the instruction of ELs was also reinforced by The National Literacy Panel on Language Minority Children and Youth (2006). The panel identified phonological awareness, phonics, fluency and literacy knowledge as essential components of reading instruction for bilingual students that also facilitate oral language development (August & Shanahan, 2006). Spanish language researchers have found similar factors related to reading readiness (Zagarramurdi et al, 2022, Jimenez et al, 2008, Luque et al, 2013).

***Environmental Factors***

One of the most significant environmental factors that will impact every other aspect of the assessment process is the language of instruction. The tables listed in Appendix B provide information that summarizes the language of instruction for bilingual students which can help select the most appropriate language to assess particular skills (English, Spanish, or bilingually).

Other elements, such as home environmental factors, can significantly impact the development of literacy skills. Circumstances, such as SES, family history of literacy challenges, the onset of exposure to English, parents' level of education, and home literacy environment can shed light on the student's risk for developing reading challenges. Finally, a family history of reading challenges is a major risk factor given the heritability of reading difficulties, including dyslexia (Willcutt et al., 2010; Grigorenko et al., 2020).

Considering the incorporation of simple questions that can help ascertain these factors may provide invaluable data to an assessment instrument that can help identify risk factors for reading challenges.

***Language Proficiency***

The National Literacy Panel on Language-Minority Children and Youth (August & Shanahan, 2006) indicated that proficiency in English has a significant impact on the development and acquisition of reading skills. Thus, ascertaining the level of English proficiency and the language of instruction, can provide essential information to guide decisions on the approaches to assess the elements of language development that can impact reading, including the testing language (English, Spanish, or bilingual). Appendix-A provides a table describing levels of language proficiency that a teacher can use to describe

an EL's English mastery attainment. Once ascertained, this can guide the most appropriate language choice (English, Spanish, or bilingual) for completing the assessment.

### **Neurocognitive measures that are essential for assessing EL's risk of reading difficulties**

#### ***Phonological Awareness***

Phonological awareness is a metalinguistic skill that is crucial in learning to read in alphabetic languages such as English and Spanish (National Reading Panel, 2000; Blachman, 2000; Casalis & Louis-Alexandre, 2000; Chiappe, Siegel & Wade Woolley, 2002; Gersten & Geva, 2003; Jimenez, Gonzalez, Monzo, & Hernandez-Valle, 2000). For children who are acquiring two languages, phonological awareness skills in the first and second language parallel each other. Furthermore, findings from a report on language-minority children and youth (August & Shanahan, 2006) concluded that oral proficiency and literacy in the first language facilitates second language acquisition. However, Spanish speakers may confuse some English sounds because of differences in voicing features between English and Spanish. Phonological awareness skills support the development of foundational language skills (Perrachione, Ghosh, Ostrovskaya, Gabrieli & Kovelman, 2017), including vocabulary learning (Adams & Gathercole, 1995) and rule-based learning in morphosyntactic development (French & O'Brien, 2008). Thus, phonological awareness provides a foundation in which reading, writing, and spelling can be taught.

Chiappe et al. (2002) note data that suggest young children learning English as a second language may show poorer performance in English phonological awareness measures than native English speakers.

Phonological representations from the native language can influence naming in English. Smith, Simmons, and Kameenui (1998) investigated the difficulty levels of phonological tasks, in which they found that difficulty in the phonological continuum exists depending on the location of phonemes. For

example, it is easiest to identify phonemes in words in the initial position, followed by those in the final position, and finally, phonemes in the medial position of words.

It has been demonstrated that monolingual Spanish-speaking children develop these skills rapidly during the preschool years. Spanish monolingual children can perform phonological awareness tasks at the lexical and syllabic level. As they are exposed to formal reading instruction they can perform increasingly complex tasks moving from words to syllables and phonemes. There is growing consensus that phonemes are important in Spanish reading (Bravo-Valdivieso, 1995; Gonzalez et al., 2000; Signorini, 1997; Paulesu et al., 2001; Pollard-Durodola et al., 2004). The Spanish language's shallow phonology, transparent orthography and simple syllabic structure allows for faster development of word recognition skills than in English (Seymour et al., 2003).

Strong phonological awareness skills transfer in a cross-linguistic manner from one's native language to their second language and further predict a child's reading development and spelling in both languages (Branum-Martin et al., 2012; Cummins, 2004; Dickinson, et al., 2004; Geva & Wang, 2001; Riccio et al., 2001, Bravo-Valdivieso, 1995; Carillo, 1994; Durgunog̃lu et al., 1993). Younger students, such as those in preschool, with poor phonological awareness skills are at risk for reading difficulties in the upper grades. Research supports phonological awareness as a skill that is foundational and necessary for successful reading in Spanish and English.

### ***Letter/Sound Knowledge***

Research describes letter and sound knowledge as an important developmental reading skill for monolingual and bilingual students (Adams, 1990; Lyon, 1998; Smith et al., 1998; Snow et al., 1998; Shaywitz, 1996). In the initial stages of reading, children rely upon the letter and corresponding sounds, and children in later stages of reading continue to use this knowledge for more complex orthographic patterns to decode and recognize words (Ehri, 1987). It is crucial that early reading targets phoneme and grapheme identification starting in preschool in an attempt to reduce the early bilingual gap (Durán &

Shefelbine, 2003; Durgunoglu, 2002). This knowledge will be dependent on the student's educational experience, including the timing of the initiation of formal reading instruction. Learning the letter and sound mapping of English is challenging due to the inconsistency of the language. This differs from transparent orthographies such as Finnish, Italian, Spanish, German and Greek grapheme-phoneme mappings which are readily accessible, efficient and contribute to word-reading accuracy (Foorman, 2023; Seymour, Aro, & Erskine, 2003). Students must also learn the distinctive features of the graphemes which occurs through the visual-motor practice of encoding each grapheme and then contrasting the similar graphemes so that decoding the letter sounds becomes efficient (Seidenberg, 2017)

### ***Rapid Automatized Naming***

Rapid Automatic Naming (RAN) measures how quickly and accurately individuals name sets of visual stimuli. RAN measures the ability of an individual to have lexical access and retrieval which is a skill characteristic of language processing. It is theorized that inefficient lexical processing results in slow and/or inaccurate performance on RAN (Wolf & Bowers, 1999). Studies of monolingual English-speaking students report a relationship between RAN and reading skills which began with the work of Denckla & Rudel (1974, 1976). Five meta-analyses of research on RAN and its predictive relationship for reading have been published (Araujo et al., 2015; Chen et al. 2021; McWeeny et al., 2022; Song et al., 2016; Swanson et al, 2003). There is broad agreement that RAN performance predicts differences in reading skills. However, the cause for poor rapid naming speed or accuracy could be a result of several cognitive processes (McWeeny et al., 2022; Wolf et al., 2000).

Recent studies of bilingual students describe the relationship between bilingual reading development and RAN. One meta-analysis of the RAN reading relationship in bilingual children has been published (Kishchak et al., 2023). The meta-analysis included 27 independent samples from 38 published studies. The results indicate an overall strength in the relationship between RAN and reading in bilingual

children. The analysis reports an average correlation between RAN and reading among bilingual students which is  $r = -.39$ . This is considered comparable to meta-analyses in monolingual children which ranged from  $r = .43$  and  $r = .44$  (Araujo et al., 2015; Chen et al., 2021). The longitudinal magnitude of RAN and reading was  $r = -.38$  which is similar to the meta-analyses results in English-speaking individuals which was also  $r = -.38$  (McWeeny et al., 2022). The findings of the first meta-analysis of RAN and reading ability in bilingual learners describe its effects as similar to that found in monolingual speakers of English.

### ***Oral Language/Vocabulary***

Oral language skills that are linked to meaning, such as vocabulary and discourse processing, are associated with variability in reaching reading comprehension (Catts et al., 2015). In addition, deficits in meaning-based oral language skills are a predictor of later reading difficulties (Catts et al., 2006). Hoover and Gough (1990) found that reading comprehension among Spanish-speaking English learners is best predicted by the combination of decoding and listening comprehension. Decoding explained the bulk of vocabulary in reading comprehension for younger children but over time, as children improve decoding, listening comprehension skills tend to explain the increasing proportion of the variance in reading comprehension.

Moreover, a large body of work suggests that vocabulary growth in one language may be more strongly linked with properties of input in that language rather than the other, at least in the early stages of development (Goodrich & Lonigan, 2017; Hoff et al., 2012). These researchers describe bilingual children as being able to draw from experiences in English and Spanish to respond to semantics and morphosyntax questions in both languages. That is, the bilingual and monolingual children had similar levels of overall language knowledge when both languages were accounted for.

This notion is consistent with findings that children who were bilingual from birth demonstrated advantages in executive function tasks compared to monolinguals and children newly immersed in

second language learning (Carlson & Meltzoff, 2008). A related possibility is that children who are newly exposed to English are going through a period of reorganization or weakening of the L1 as they begin to be exposed to English (Kohnert et al., 2005).

Additionally, language development in L1 and/or L2 may be mediated by the age of first exposure to each language, as well as the characteristics of daily input and use. Bilinguals vary in terms of when they start learning a second language, and this is further affected by schooling (Hakuta, Bialystok, & Wiley, 2003). Some children begin acquiring a second language at birth, while others have their first exposure to the majority or community language when they begin preschool (August & Shanahan, 2006; Bohman et al., 2010; De Houwer, 2007). Hammer, Lawrence, and Miccio (2008) found that EL children who were exposed to English from birth performed better on English-language tests at the time of school entry compared to children who spoke only Spanish at home. This is not surprising as the number of years of exposure to a language can have a positive effect.

In summary, when assessing bilingual Spanish English learners, it is necessary to understand the critical role of oral language proficiency in L1 and L2, listening comprehension, vocabulary, the context of home and school environment, and how they impact the neurocognitive elements required for the development of reading skills. This should inform how to best screen bilingual children and identify their overall capabilities.

### ***How do we Test?***

Screening and assessments of young bilinguals must combine concepts known in the home language with those concepts being learned in the second language (Escamilla, 2000). Conceptual scoring has been an emerging strategy in the field of bilingual measurement. Conceptual scoring documents responses across languages for each item (Bedore et al., 2005). This concept aligns well with an asset-based approach to testing and teaching bilinguals. In essence, bilinguals do not represent two monolinguals, but unique individuals who understand, communicate, read and write in and across a

minimum of two languages. For example, when measuring vocabulary, conceptual scoring allows for responses in the native or second language. This will better represent the student's conceptual knowledge, language skill, or dialectal variations. The development of such measures maximizes the likelihood of capturing the language and literacy capabilities of bilingual children.

### ***Implications for Schooling***

Half of the world's population speaks more than one language (Nayeb et. al, 2019; Grosjean, 1982). Spanish-speaking bilingual children are at risk of experiencing academic challenges (Hemphill & Vanneman, 2011; Snow, 1992). It is crucial that educators have the research that helps support the design of a responsive and supportive academic learning environment. In addition, incorporating instructional language support is necessary to provide a foundation for English language development. Extensive research and theory indicate that first language proficiency provides students with a foundation for second language acquisition.

The language of instruction models (see Appendix B) may impact the outcomes when screening or assessing bilingual students. It is essential to understand the context of the home and school language to make decisions about how these variables affect the development of reading skills.

### **Conclusion**

Bilingual language experiences and development differ from monolingual language experiences and development. Research has shown that bilingual children perform lower than monolingual children on tests administered only in the mainstream language (Bialystok, Craik, & Luk, 2008b; Bialystok, Luk, Peets, & Yang, 2010; Pearson, Fernández, & Oller, 1993). Children from culturally and linguistically diverse backgrounds continue to be misdiagnosed in the area of language as a result of different home and school language experiences (Blount, 1982; Heath, 1983, 1986; Rogoff, 1991; Schieffelin & Ochs, 1986). This makes the assessment of bilingual students a challenging task. While the *neurocognitive functions* that impact reading in monolingual students are similar to those in ELs, their *English language*

*proficiency and environmental factors, including a family history of reading difficulties* can significantly impact the development of literacy skills.

The principal goal of this literature review is to provide a summary of the research for the assessment of ELs in order to identify the critical elements that will inform early identification of those at risk for reading problems. *It is imperative that language screeners for bilingual children assess their performance in English and Spanish or in a bilingual approach.* Consideration of dialectal variations should be incorporated into the assessment instrument. Assessment in only one language is not a complete representation of a bilingual learner's overall language or literacy abilities.

Based on the review of the literature summarized above, we offer the following recommendations for the development of such an instrument.

1. Environmental factors
  - a. Language(s) spoken at home
    - i. Preference
      1. Spanish
      2. English and Spanish
      3. By whom
    - b. Language of instruction
      - i. Structured English Immersion
      - ii. English as a Second Language
      - iii. Transitional Bilingual Education
      - iv. Dual language (one-way, two-way, 50/50 model or other)
    - c. Parental level of education
    - d. Socioeconomic background
2. Language proficiency

- a. Native and second language proficiency test results
  - b. Onset of exposure
    - i. Recent immigrant
    - ii. Born in the US
  - c. Stages of second language development
    - i. Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP)
      - 1. Silent/Receptive (Preproduction)
      - 2. Early production
      - 3. Speech emergence
      - 4. Intermediate language proficiency
      - 5. Advanced language proficiency
3. Neurocognitive functions to assess by age/grade
- a. 4 y/o (no schooling or Pre-K)
    - i. Rhyme
    - ii. Lexical and syllabic PA
    - iii. Letter knowledge
    - iv. RAN
    - v. Oral language
      - 1. Receptive/Expressive vocabulary
      - 2. Listening comprehension
      - 3. Oral Expression
  - b. 5 y/o: (Kindergarten)
    - i. Syllabic and phoneme PA

- ii. Letter/Sound knowledge
  - iii. RAN
  - iv. Oral language
    - 1. Receptive/Expressive vocabulary
    - 2. Listening comprehension
    - 3. Oral Expression
- c. 6 y/o (First grade)
- i. Phoneme PA
  - ii. Letter/Sound knowledge
  - iii. RAN
  - iv. Oral language
    - 1. Receptive/Expressive vocabulary
    - 2. Listening comprehension
    - 3. Oral expression

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**APPENDIX - A****Stages of Second Language Acquisition**

Preproduction	<ul style="list-style-type: none"> <li>● Very limited English skills (understanding and communicating)</li> <li>● Usually silent, communicates by nodding, pointing or drawing</li> <li>● Observant of others during conversations</li> <li>● May last about 6 months</li> </ul>
Early/Beginning Production	<ul style="list-style-type: none"> <li>● Communicates in 1–2-word phrases usually in the present tense</li> <li>● Understands simple directions</li> <li>● About 1,000-word vocabulary</li> <li>● May start 6 months after the beginning of instruction and may take 1 year to complete</li> </ul>
Speech Emergence	<ul style="list-style-type: none"> <li>● Communicates using short phrases and simple sentences</li> <li>● Can answer simple questions (e.g., “Where’s the classroom?”)</li> <li>● Has basic listening comprehension but misses pragmatic skills (symbolic language, humor, sarcasm and subtleties of language)</li> <li>● Begins after 1 year and may last 2 years</li> </ul>
Intermediate Fluency/Language Proficiency	<ul style="list-style-type: none"> <li>● Speaks and writes using longer, more complex sentences and few grammatical errors</li> <li>● Can write in English in all subject areas</li> <li>● Can request clarification</li> </ul>

Advanced Fluency/ Language Proficiency	<ul style="list-style-type: none"><li>• Communicates and understands English as a native speaker</li><li>• Grasps subtleties of pragmatic language</li><li>• Can comprehend, interpret, analyze and evaluate written information</li></ul>
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Adapted from Teaching English language learners: Effective instructional practices. IRIS Center. (n.d.).

from <https://iris.peabody.vanderbilt.edu/module/ell/cresource/#content>

**APPENDIX - B****English Learner Program Models**

PROGRAM OPTION	PROGRAM GOAL	INSTRUCTIONAL LANGUAGE(S)
English as a second language or English language development	Techniques, methodology and curricula designed to explicitly teach ELs about the English language, including academic vocabulary necessary to gain access to instruction and develop proficiency in their English proficiency in listening, speaking, reading and writing	Usually taught in English with limited use of EL native language
Structured English Immersion	Designed to impart proficient English language skills to facilitate the EL's transition and success in English only classrooms	Usually taught in English with limited use of EL native language
Transitional bilingual education (TBE) (early-exit bilingual education)	Maintains and develops skills in the primary language while introducing, maintaining and developing skills in English. Goal: transition into an	Taught in the student's primary language and English

	<p>all-English instruction program while receiving academic subject instruction in the primary language as needed</p>	
<p>Dual language or two-way immersion</p>	<p>Bilingual instructional program with the goal of developing proficiency in both languages. Class typically consists of half English speakers and half primary speakers of another language</p>	<p>English and another language</p>

Adapted from U.S. Department of Education, Office of English Language Acquisition. (2017) *English Learner Toolkit (rev. ed)*. Washington, DC